

WE CLAIM:

1. A surgical drain comprising:
an elongated conduit configured to be implanted in and to drain fluid from a body cavity; and
a first sensing system configured to sense a physiological property of a substance within the drain lumen.
2. The surgical drain of claim 1 configured to drain blood, puss, bile or intestinal contents.
3. The surgical drain of claim 1, comprising a second sensing system configured to sense a different physiological property than the first sensing system.
4. The surgical drain of claim 1, wherein the physiological property is selected from the group comprising: oxygenation, perfusion, temperature, pH, NADH levels, biochemical composition, drug concentration, turgidity or pressure.
5. The surgical drain of claim 1, wherein the conduit includes a drain portion configured to rest against a substantial length of tissue within the body cavity and a plurality of drain holes spaced along substantially the entire length of the drain portion.
6. The surgical drain of claim 1, comprising a display in communication with the first sensing system, wherein the display is configured to depict data corresponding to the physiological property sensed by the first sensing system.
7. A surgical drain comprising:
an elongated conduit configured to be implanted in and to drain fluid from a body cavity, the elongated conduit including a lumen having a first position and a second position located within the lumen;
a first transmitting element configured to deliver energy to the lumen proximate to the first position; and
a first sensing system configured to receive energy proximate to the lumen second position.

8. The surgical drain of claim 7, wherein the first transmitting element and first sensing system are embedded within the conduit behind material that is optically transparent.

9. The surgical drain of claim 7, wherein the first position and second position are located on substantially opposite sides of the drain lumen.

10. The surgical drain of claim 7, wherein the lumen includes a third position and a fourth position, further comprising:

a second transmitting element configured to deliver energy to the lumen proximate to the third position; and

a second sensing system configured to receive energy proximate to the lumen fourth position.

11. The surgical drain of claim 10, further comprising a processing system in communication with the first and second sensing systems configured to compare a difference between the energy detected by the first and second sensing systems.

12. The surgical drain of claim 10, comprising a third sensing system configured to sense a different physiological property than the first sensing system.

13. The surgical drain of claim 10, wherein the physiological property is selected from the group comprising: oxygenation, perfusion, temperature, pH, NADH levels, biochemical composition, drug concentration, turgidity or pressure.

14. The surgical drain of claim 10, wherein the conduit includes a drain portion configured to rest against a substantial length of tissue within the body cavity and a plurality of drain holes spaced along substantially the entire length of the drain portion.

15. The surgical drain of claim 10, comprising a display in communication with the third sensing system, wherein the display is configured to depict data corresponding to the physiological property sensed by the third sensing system.

16. A method of utilizing a surgical drain to monitor substances in a drain lumen comprising:

implanting a surgical drain having a surgical drain lumen within a body cavity in proximity to a tissue to be monitored, wherein the surgical drain includes a first sensing system configured to sense a physiological property of a substance within a drain lumen;

receiving information from the first sensing system regarding a substance within the drain lumen;

monitoring the information received from the sensing system to evaluate the condition of the tissue over time.

17. The method of claim 16, comprising transmitting energy within the drain lumen and receiving energy with the first sensing system.

18. The method of claim 16, further including processing the information received from the first sensing system.

19. The method of claim 18, further including displaying information received from the first sensing system.

20. The method of claim 18, wherein implanting the surgical drain comprises anchoring the surgical drain to a tissue within the body cavity.

21. A method of utilizing a surgical drain to monitor substances in the drain lumen comprising:

implanting a surgical drain within a body cavity in proximity to tissue to be monitored, wherein the surgical drain includes a first and a second sensing system configured to sense a physiological property of a substance within the drain lumen;

receiving information from the first and second sensing systems regarding substances in the drain lumen;

monitoring the information received from the first and second sensing systems to evaluate the condition of the tissue over time.

22. The method of claim 21, comprising processing information from the first and second sensing systems to compare a difference in information received from the first and second sensing systems.

23. The method of claim 21, comprising processing information from the first and second sensing systems to compare a difference in information received from the first and second sensing systems proximate to different positions along the drain lumen.